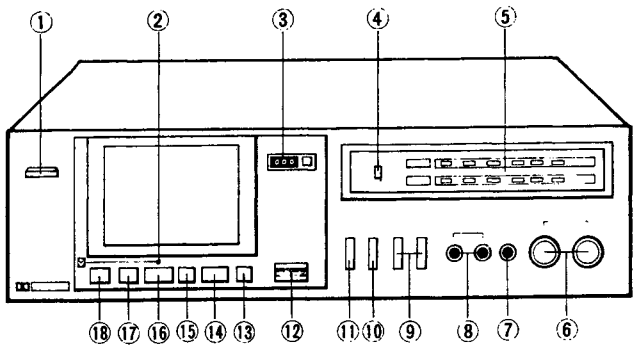
HITACHI
SERVICE MANUAL

TK | **No. 1445E**

D-E25
(U, C, FS, BS, AU, W)

Use this manual together with the ML-1 mechanism Technical Information (No.1473).

HITA-00383



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KEY TO ILLUSTRATIONS

1. Power (Mains) switch
2. Playback indicator
3. Tape counter
4. Recording indicator
5. Level indicators
6. Recording level controls
7. Headphone socket
8. Microphone sockets
9. Tape select switches
10. Dolby NR switch
11. REC Mute switch
12. Eject button
13. Pause button
14. Stop button
15. Fast forward button
16. Playback button
17. Rewind button
18. Record button

SAFETY PRECAUTION

The following precautions should be observed when servicing.

1. Since many parts in the unit have special safety related characteristics, always use genuine Hitachi's replacement parts. Especially critical parts in the power circuit block should not be replaced with other makes.
   Critical parts are marked with ⚠ in the schematic diagram and circuit board diagram.
2. Before returning a repaired unit to the customer, the service technician must thoroughly test the unit to ascertain that it is completely safe to operate without danger of electrical shock.

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SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

STEREO CASSETTE TAPE DECK

December 1980 **TOKAI WORKS**

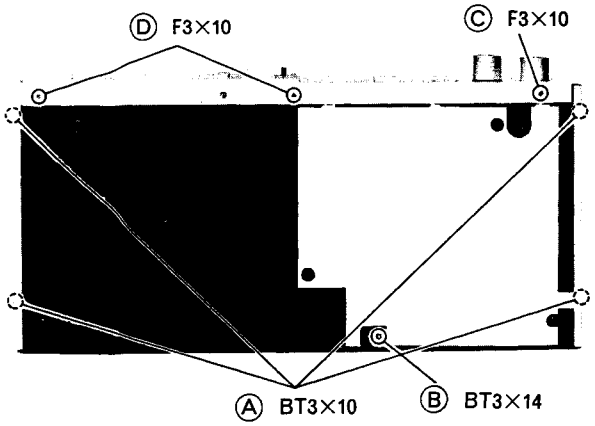
SPECIFICATIONS

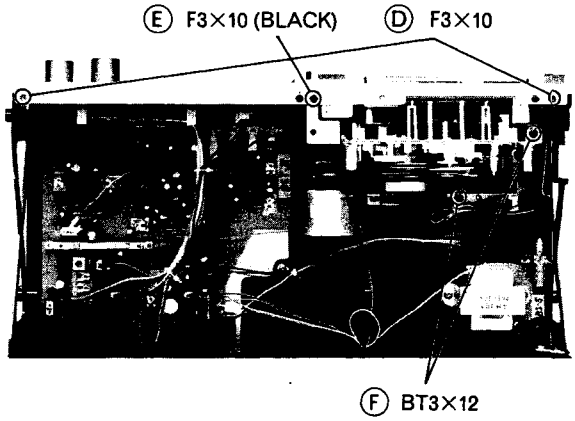
Semi-conductors :	
ICs :	3
Transistors :	17
Diodes :	13(U), 14(C)
	15(FS, BS, AU, W)
LEDs :	14
Track System :	4 track 2 channel stereo
Tape :	Cassette tape (C-30, 60, 90)
Tape Speed :	4.75cm/s
Recording System and	
Bias Frequency :	AC bias, 85 kHz
Erasing System :	AC erase
Erase Ratio :	65 dB or more (at 1 kHz)
Frequency Response :	
ER/UD (NOR) :	20 Hz～15 kHz
	30 Hz～14 kHz (±3 dB)
	30 Hz～14 kHz *
EX/SX (CrO_2) :	20 Hz～16 kHz
	30 Hz～15 kHz (±3 dB)
	30 Hz～15 kHz *
ME (Metal) :	20 Hz～17 kHz
	30 Hz～16 kHz (±3 dB)
	30 Hz～16 kHz *
S/N (Signal to Noise Ratio) :	
Dolby NR OFF :	58 dB (Weighted A, Reference 3% THD Metal Tape)
	57 dB*
Dolby NR ON :	66 dB (Weighted A, Reference 3% THD Metal Tape)
	65 dB*

Wow and Flutter :	0.05% (WRMS)
	0.17%*
Input Sensitivity and Impedance :	
Microphone :	0.3mV, 300 ohms～5k ohms
Line in :	75mV, 50k ohms or more
DIN (Record/Playback) :	0.35mV, 3.3k ohms (FS, BS, AU, W)
Output Level :	500mV
Output Load Impedance :	
Line out :	50k ohms or more
DIN (Record/Playback) :	50k ohms or more (FS, BS, AU, W)
Headphone :	8 ohms～2k ohms
Distortion :	1.2% (1 kHz, 160 nwb/m)
Crosstalk :	60 dB or more (at 1 kHz)
Channel Separation :	30 dB or more (at 1 kHz)
Power Supply :	AC 120V, 60 Hz (U, C)
	AC 100-110V/115-127V/ 200-220V/230-250V, 50/60 Hz (W)
	AC 220V, 50 Hz (FS)
	AC 240V, 50 Hz (BS, AU)
Power Consumption :	8W
Dimensions :	110(H)×435(W)×201(D)mm
Weight :	2.8kg
Motor :	Electronically controlled DC motor
Heads :	Metal SL Record/playback head
	Three-gap ferrite Erase head

*According to DIN 45 500

DISASSEMBLY





1. **Cassette door**
   Depress the eject button to open the cassette door. Lift up the cassette door to remove it.
2. **Upper cover**
   Remove Ⓐ (four) screws.
3. **Bottom cover**
   Remove Ⓑ, Ⓒ (two) screws.
4. **Front panel**
   1) Remove two knobs (Record level).
   2) Remove Ⓒ, Ⓓ, Ⓔ (six) screws.
5. **Cassette chassis**
   Remove Ⓕ (two) screws.

ADJUSTMENT

Perform the following adjustments in the sequence stated after cleaning the head, pressure roller, and capstan with a head cleaning stick moisted in alcohol. Also, unless specially indicated otherwise, set the switches and controls to the positions indicated in the table.

Symbol No.	Switches and Controls	Position
S2	Dolby NR switch	OFF
S4, S5	Tape select switches	ER/UD (NOR)

Symbol No.	Switches and Controls	Position
RV1L, R	Record level controls	Max.

* According to DIN 45 500

Item	Adjustments	Measuring Instrument and Connection: Measuring Instrument	Input Terminal	Output Terminal	Check Tape	Mode	Adjusted Position	Adjusted Value	Remarks
1	Tape speed	· Frequency counter	——	LINE OUT	MTT-111, 3000 Hz (3150 Hz*)	Playback	Semi-variable resistor in the motor	3000 Hz $^{+30}_{-10}$ Hz (3150 Hz*)	See Note 1
2	Head azimuth	· VTVM	——	LINE OUT	MTT-316, 12.5 kHz	Playback	Azimuth adjusting screw	Output Max.	See Note 2
3	Playback gain	· VTVM	——	LINE OUT	MTT-150, 400 Hz, 20 m Maxwell	Playback	RT1L, R	775 mV	See Note 3
4	Level indicator						RT4L, R	Level indicators indicate 0 dB	See Note 4
5 (1)	Bias leakage	Set the tape select switches (S4, S5) to CrO_2 position.							
5 (2)		· Frequency counter	——	TP2L, R	——	Record	L2	83—85 kHz	See Note 5
6 (1)	Bias current	· VTVM	——	TP3L, R and TP4L, R	——	Record	RT5L, R	10V	See Note 6
6 (2)		Set RT3L, R to the center.							
6 (3)		· Audio oscillator (1 kHz/13 kHz, 0 dB—23 dB) · Attenuator · VTVM	LINE IN	LINE OUT	ER/UD tape	Record/ playback	RT5L, R	Output difference within ±0.5 dB	See Note 7
7	Record/ playback output level	· Audio oscillator (400 Hz, 0 dB)	LINE IN	——	ER/UD tape	Record/ playback	RT3L, R	Level indicators indicate 0 dB	See Note 8
8	Dolby NR	· Audio oscillator (5 kHz) · VTVM	LINE IN	TP1L, R	——	Record	RT2	Boosted by 8 dBm ±0.1 dB	See Note 9

Note :

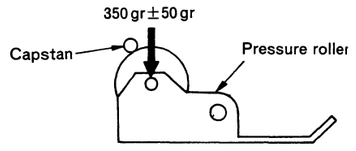
1. Adjust within 30 sec. after heat-running for more than 20 minutes.
2. When the maximum values of both channels are different, tune to the maximum value of the L channel. In this case, the difference between the maximum values of both channels should be within 2 dB.
3. Playback a test tape (MTT-150, 400 Hz 20m Maxwell) and adjust RT1L, R so that the level of LINE OUT jacks become 775 mV.
4. With the condition shown in item 3, adjust RT4L, R so that the level indicators indicate 0 dB.
5. Set the tape select switches (S4, S5) to the CrO_2 position in the recording mode. Adjust L2 so that the bias frequency of TP2L, R becomes 83—85 kHz.
6. Adjust RT5L, R so that the bias voltage between TP3L, R and TP4L, R becomes 10V in the recording mode.
7. 1) Set RT3L, R to the center.
   2) Feed a 1 kHz signal to the LINE IN jacks in the recording mode and adjust the audio oscillator output so that the level indicators indicate 0 dB. Then, adjust the attenuator to lower the output level by 23 dB.
   3) Record the signal on ER/UD tape with the conditions of item 2), then continue to record with the audio oscillator frequency set to 13 kHz.
   4) Playback the recorded signal and adjust RT5L, R so that the output level difference between two frequencies is within ±0.5 dB measured at the LINE OUT jacks.
8. 1) Feed a 400 Hz signal to the LINE IN jacks in the recording mode and adjust the audio oscillator output so that the level indicators indicate 0 dB.
   2) Record the signal on ER/UD tape with the conditions of item 1).
   3) Playback the recorded signal and adjust RT3L, R so that the level indicators indicate 0 dB.
9. Feed a 5 kHz signal to the LINE IN jacks in the recording mode and adjust the audio oscillator output so that the level of TP1L, R becomes −30.4 dBm ±0.1 dB. Then, adjust RT2 so that the level is boosted by 8 dBm ±0.1 dB when the Dolby NR switch (S2) is set to ON.

INSPECTION OF MECHANISM

Check Item			Reference Value	Remarks
1	Pressure of pressure roller		350±50 gr	Note 1
2	Torque	Take-up	33 to 65 gr-cm	Measure in playback mode
		FF	70 to 120 gr-cm	Measure in FF mode
		Rewind	70 to 120 gr-cm	Measure in REW mode
3	Back tension	Take-up side	6 gr-cm	With counter
		Supply side	1 to 3 gr-cm	Without counter
4	Flywheel thrust gap		0.05 to 0.5 mm	—
5	Brake force		More than 10 gr-cm	—

Note 1. Pressure of pressure roller

Set this unit in the playback mode and press the pressure roller in the direction of the arrow using a fan type tension gauge, and measure the pressure when the pressure roller is released from the capstan.



LUBRICATION

Lubricate one or two drops of oil to rotating point or lubricate grease to sliding point.
Lubricate the respective parts listed once every 1000 hours or once a year under normal conditions of use.
Avoid oiling them excessively, or rotation may become irregular because of oil splashes.

Lubrication		Oil or Grease
Rotary section	Metal and metal	Pan motor oil (10W-40)
	Mold and metal	Sonic slider oil (#1600)
Sliding section	Metal and metal	Hitasol (MC-138)
	Mold and mold Mold and metal	White grease (FL-LUBE-A)
Spring resonance prevention		Froil (GB-TS-1)

SCHEMATIC DIAGRAM

Q1L 2SC1740LN-E MIC AMP
Q2L 2SC1740LN-E PRE AMP
Q3L 2SC1740LN-E PRE AMP
Q4L 2SC1740LN-E LINE AMP
IC1LR(1/2) HA11226 DOLBY NR
D1L IN60 DOLBY RECT.
D2L IS2473 DOLBY RECT.
Q5L 2SC1740LN-E RECORDING AMP
D4 HZ12B VOLTAGE STAB.
Q9 2SD468C VOLTAGE STAB.
IC2L IR2E01 METER AMP
D3 RD5.1EB SWITCHING
Q6L 2SC1740LN-E HEADPHONE AMP
Q7L 2SC1740LN-E MUTING
LED3L, LED4L SLB-15UR LEVEL INDICATOR

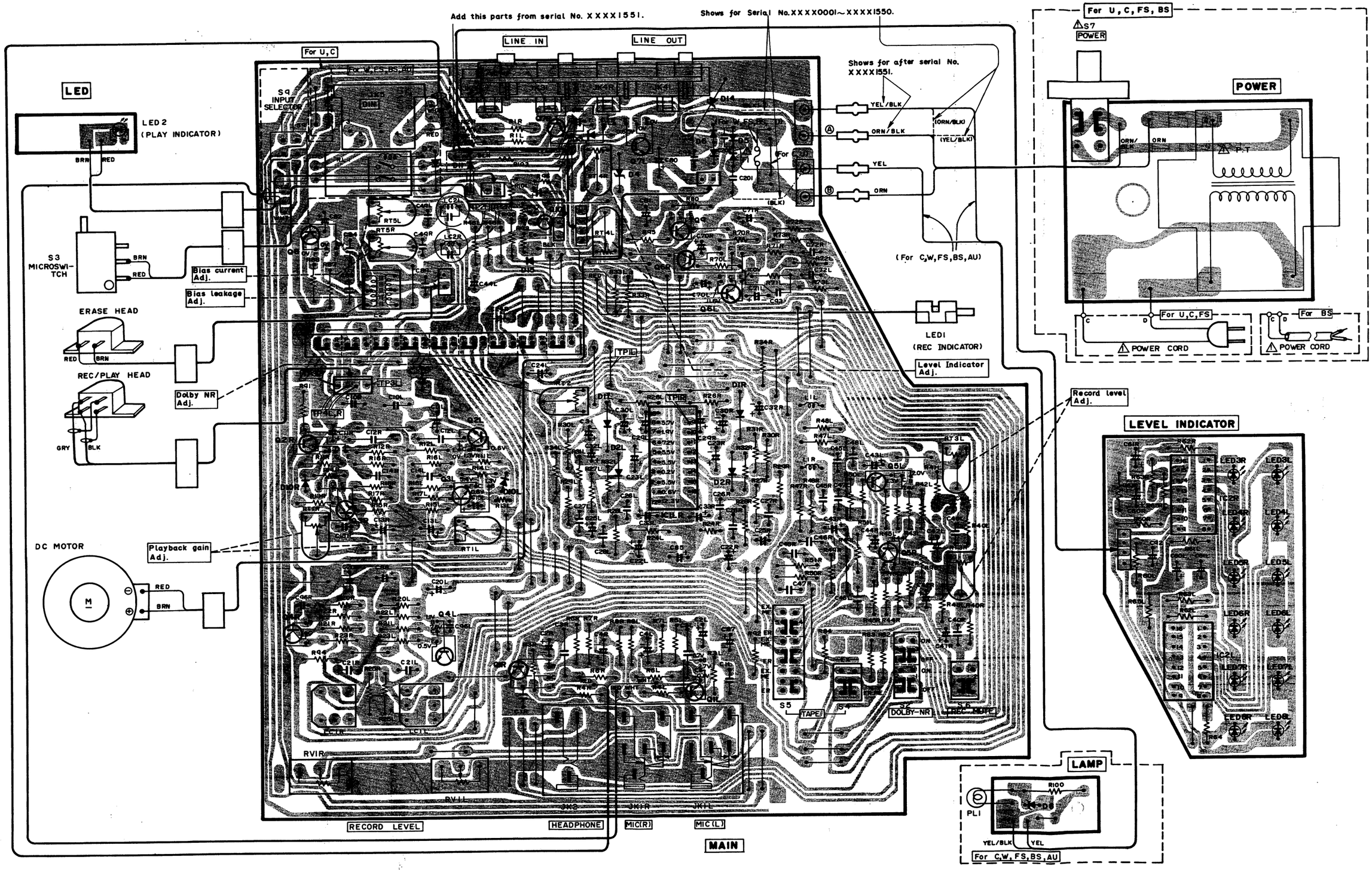
LED5L-LED8L SLB-15GG LEVEL INDICATOR

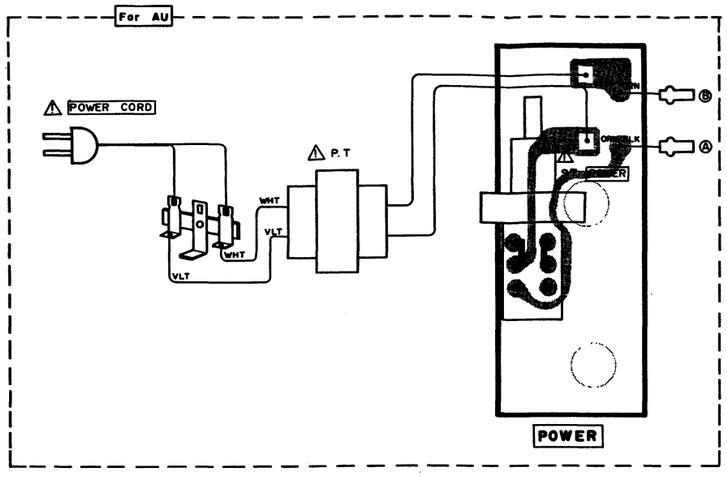
Add this parts from serial No. XXXX 1551.

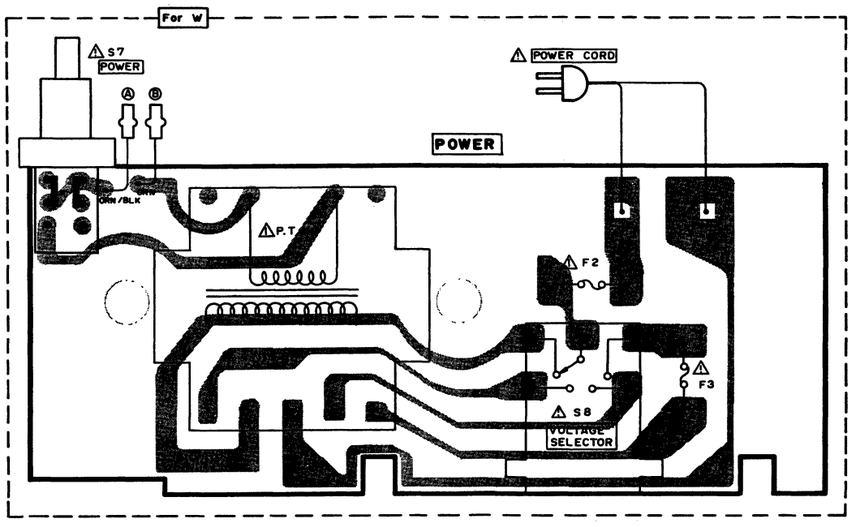
When beats are generated due to the bias oscillator circuit during AM broadcast reception, install a 270pF capacitor in parallel with C89 to drift the bias oscillator frequency by approx. 2 kHz.

Q8 2SD667C BIAS OSC.
LED1 GL9PR2 "REC"
LED2 SLG-22G5 "PLAY"
D10L IS2473 NOISE ELIMINATE
Q10 2SC1740E SWITCHING
D7 IS2473 REVERSE VOLTAGE PROTECTOR
D5 SRP02-100NLF RECT.
D6 SRN02-100NLF RECT.
D8 HZ5 VOLTAGE STAB.
D15 IS2076 PROT.
D11 IS2076 PROT.
D14 HZ12A PROT.

CIRCUIT BOARD DIAGRAM

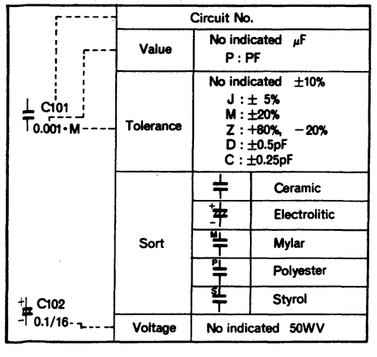




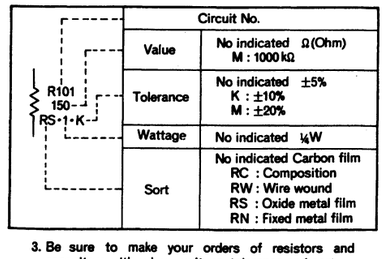


Note

1. Voltage measured at base of chassis with minimum volume control and no signal.
2. Nomenclature of Resistors and Capacitors.



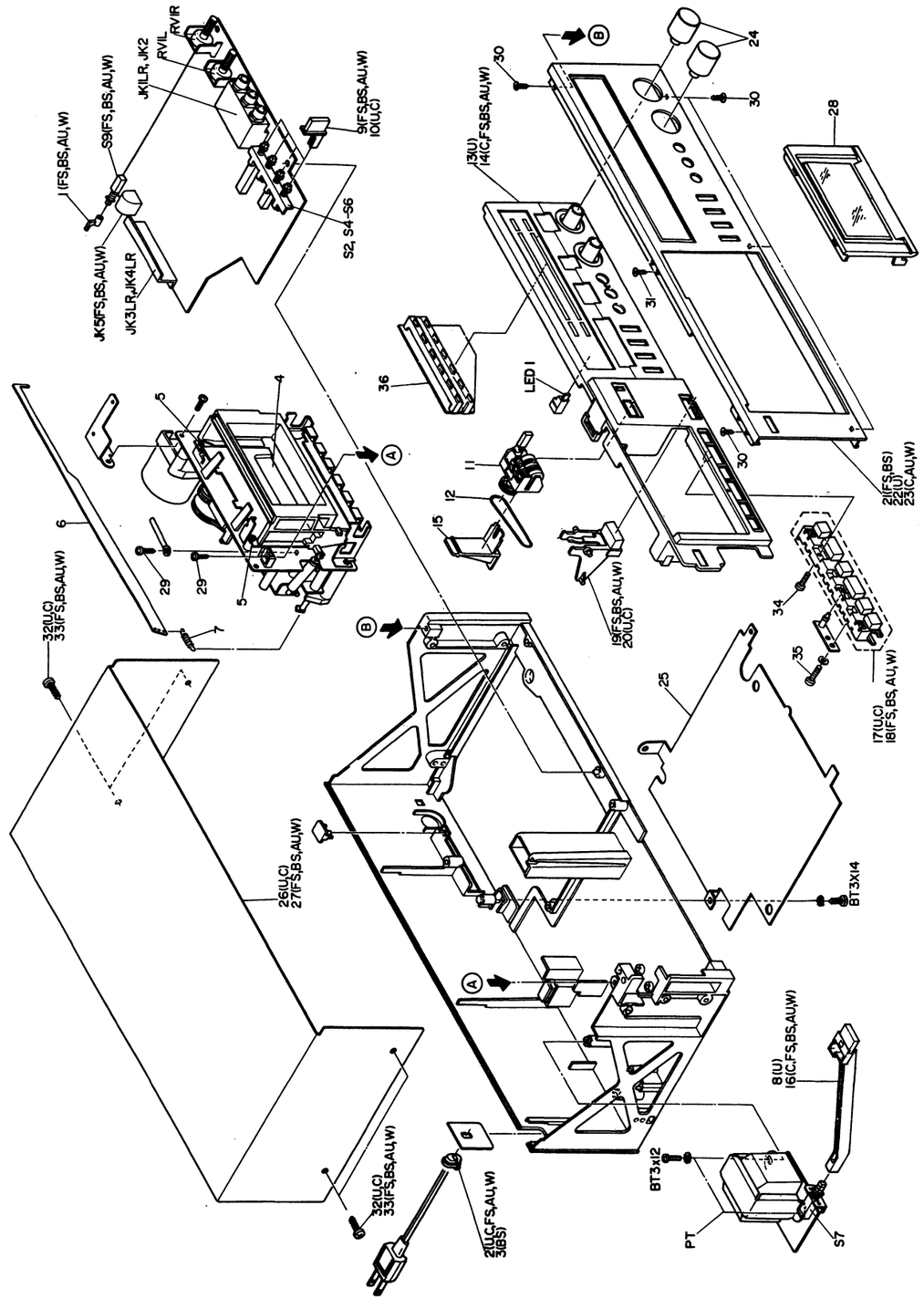
Circuit No.		
Value	No indicated μF P : PF	
Tolerance	No indicated ±10% J : ± 5% M : ±20% Z : +80%, −20% D : ±0.5pF C : ±0.25pF	
Sort		Ceramic
		Electrolitic
		Mylar
		Polyester
		Styrol
Voltage	No indicated 50WV	



Circuit No.	
Value	No indicated Ω(Ohm) M : 1000 kΩ
Tolerance	No indicated ±5% K : ±10% M : ±20%
Wattage	No indicated ¼W
Sort	No indicated Carbon film RC : Composition RW : Wire wound RS : Oxide metal film RN : Fixed metal film

3. Be sure to make your orders of resistors and capacitors with value, voltage, tolerance and sort.
4. When replacing capacitors marked with ✱, use specified ones stated on parts list since required temperature characteristics.

EXPLODED VIEW (Cabinet)

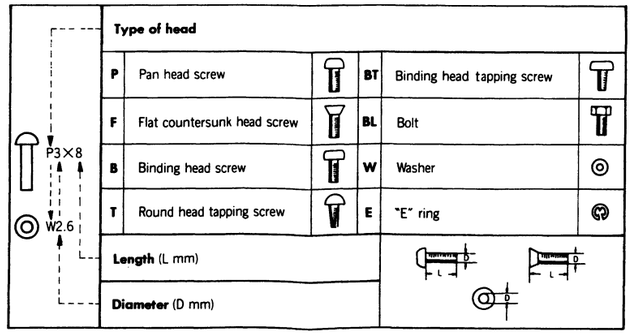


Note : Components marked without numbers in this drawing are not specified as replacement parts.

REPLACEMENT PARTS LIST

SYMBOL-NO	P-NO	DESCRIPTION
		CAPACITORS
C 3LR	0209006	CERAMIC (RESISTOR SHAPE) 470PF+-10%
C10LR	0209726	CERAMIC (RESISTOR SHAPE) 820PF+-10%
C12LR	0209006	CERAMIC (RESISTOR SHAPE) 470PF+-10%
		RESISTORS
RT1LR	0151808	SEMI VARIABLE RESISTOR 10K OHM
RT2	0151808	SEMI VARIABLE RESISTOR 10K OHM
RT3LR	0151808	SEMI VARIABLE RESISTOR 10K OHM
RT4LR	0151808	SEMI VARIABLE RESISTOR 10K OHM
RT5LR	0151819	SEMI VARIABLE RESISTOR 250K OHM
RV1LR	5000662	VARIABLE 20KOHM (A)
		SEMI-CONDUCTORS
D 1LR	5331622	DIODE 1N60FM-P
D 2LR	5330574	DIODE 1S2473
D 3	5330841	ZENER DIODE RD5.1E-B
D 4	5330532	DIODE SILICON HZ-12B 1.0M
D 5	5331451	DIODE SRP02-100NLF
D 6	5331452	DIODE SRP02-100NLF
D 7	5330574	DIODE 1S2473 (FS, BS, AU, W)
D 8	5331012	ZENER DIODE HZ5B (C, FS, BS, AU, W)
D10LR	5330571	DIODE 1S2473VE
D11	5330131	DIODE 1S2076
D14	5330531	ZENER DIODE HZ-12A
D15	5330131	DIODE 1S2076
IC 1	5350561	IC HA 11226
IC 2LR	5352401	IC IR2E01
LED1	5380271	LED GL-9PR2
LED2	5380622	LED SLC22GG5
LED3LR	5380551	LED SLB-15UR
LED4LR	5380551	LED SLB-15UR
LED5LR	5380552	LED SLB-15GG
LED6LR	5380552	LED SLB-15GG
LED7LR	5380552	LED SLB-15GG
LED8LR	5380552	LED SLB-15GG
Q 1LR	5321295	TRANSISTOR 2SC1740E
Q 2LR	5321295	TRANSISTOR 2SC1740E
Q 3LR	5321295	TRANSISTOR 2SC1740E
Q 4LR	5321295	TRANSISTOR 2SC1740E
Q 5LR	5321295	TRANSISTOR 2SC1740E
Q 6LR	5321295	TRANSISTOR 2SC1740E
Q 7LR	5321295	TRANSISTOR 2SC1740E
Q 8	5322651	TRANSISTOR 2SD667C
Q 9	5321213	TRANSISTOR 2SD468C 190MHZ 0.9MW
Q10	5321295	TRANSISTOR 2SC1740E
		TRANSFORMERS
⚠ PT	5211932	POWER TRANSFORMER (AU)
⚠ PT	5212592	POWER TRANSFORMER (U.C)
⚠ PT	5212593	POWER TRANSFORMER (FS)
⚠ PT	5212594	POWER TRANSFORMER (BS)
⚠ PT	5212941	POWER TRANSFORMER (W)
		COILS
L1LR	5150364	CHOKE COIL 3.3 MH
L2	5260369	BIAS OSCILLATOR COIL
		MISCELLANEOUS
	5658062	LED SOCKET (FOR LED1)
⚠	5682001	2P TERMINAL PLATE (AU)
⚠	5746157	POWER CORD (W)
⚠	5746158	POWER CORD (FS)
⚠	5746342	POWER CORD (BS)
⚠	5746442	POWER CORD (U.C)
⚠	5746571	POWER CORD (AU)
⚠F1	5720175	FUSE 800MA (FS, BS, AU, W)
⚠F2	0591100	FUSE 200MA (W)
⚠F3	5720105	FUSE 0.15A (W)
JK1LR	5679732	JACK (MIC)
JK2	5679732	JACK (HEADPHONE)
JK3LR	5676261	PIN JACK ASSEMBLY (LINE IN)
JK4LR	5676261	PIN JACK ASSEMBLY (LINE OUT)
JK5	5651141	5P DIN SOCKET (FS, BS, AU, W)
LC1LR	5161665	DOLBY FILTER
LC2LR	5120562	TRAP COIL
PL1	5762035	PILOT LAMP (FOR POWER SWITCH BUTTON ILLUMINATION) (C, FS, BS, AU, W)
RL1	5641141	REED RELAY (FS, BS, AU, W)
S 1	5623435	SLIDE SWITCH (REC/P.B.)
S 2	5634392	PUSH SWITCH (DOLBY NR)
S 3	5633361	PUSH SWITCH (MUTING)
S 4	5634392	PUSH SWITCH (TAPE SELECTOR)
S 5	5634392	PUSH SWITCH (TAPE SELECTOR)
S 6	5634392	PUSH SWITCH (REC MUTE)
⚠ S 7	5637038	PUSH SWITCH (POWER)
⚠ S 8	5605121	ROTARY SWITCH (VOLTAGE SELECTOR) (W)
S 9	5633311	PUSH SWITCH (LINE/DIN INPUT SELECTOR) (FS, BS, AU, W)
		FOR ACCESSORIES
	7740321	HEAD CLEANING STICK
	5895501	PATCH CORD
	5662021	SOCKET ADAPTER (W)
		MISCELLANEOUS
1	6050541	KNOB (LINE/DIN INPUT SELECTOR) (FS, BS, AU, W)
⚠ 2	0043793	BUSHING (U, C, FS, AU, W)
⚠ 3	6711351	BUSHING (BS)
4	6634031	CASSETTE METAL
5	7780263	BIND TAPPING SCREW-2.6MMDX14MM
6	7333333	RECORD PLATE
7	6302745	SPRING FOR RECORD PLATE
8	6763411	PUSH BUTTON ASSEMBLY (POWER) (U)

SYMBOL-NO	P-NO	DESCRIPTION
		MISCELLANEOUS
9	6053613	PUSH BUTTON (REC MUTE, DOLBY NR, TAPE SELECTOR) (FS, BS, AU, W)
10	6053614	PUSH BUTTON (REC MUTE, DOLBY NR, TAPE SELECTOR) (U, C)
11	5559481	COUNTER
12	6354601	BELT
13	6763251	FRONT FRAME ASSEMBLY (U)
14	6763252	FRONT FRAME ASSEMBLY (C, FS, BS, AU, W)
15	6763241	COUNTER HOLDER
16	6764151	PUSH BUTTON ASSEMBLY(POWER) (C, FS, BS, AU, W)
17	6765821	FUNCTION BUTTON ASSEMBLY (U.C)
18	6763464	FUNCTION BUTTON ASSEMBLY (FS, BS, AU, W)
19	6053601	EJECT BUTTON (FS, BS, AU, W)
20	6060091	EJECT BUTTON ASSEMBLY (U, C)
21	6224124	FRONT PANEL ASSEMBLY (FS.BS)
22	6224122	FRONT PANEL ASSEMBLY (U)
23	6224123	FRONT PANEL ASSEMBLY (C, AU, W)
24	6289281	KNOB ASSEMBLY (RECORD LEVEL)
25	6043352	BOTTOM COVER
26	6043335	UPPER COVER (U.C)
27	6043336	UPPER COVER (FS, BS, AU, W)
28	6093033	CASSETTE DOOR
29	8699412	BIND TAPPING SCREW-3MMDX12MM(BLACK)
30	7781581	BT FLAT SCREW-3MMDX10MM
31	7781582	FALT SCREW-3MMDX10MM(BLACK)
32	8698410	BT BIND SCREW-3MMDX10MM (U.C)
33	8699410	BT BIND HEAD SCREW-3MMDX10MM (BLACK) (FS, BS, AU, W)
34	7780263	BIND TAPPING SCREW-2.6MMDX14MM
35	8691312	BT BIND SCREW-2.6MMDX12MM
36	6763271	LED HOLDER



When ordering hardware excluding stated on these lists, be sure to make your orders with type and size.

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Tel. 312-593-1550
Southern Regional Office
510 Plaza Drive College Park, Georgia 30349
Tel. 404-763-0360
Western Regional Office
401 West Artesia Boulevard, Compton, California 90220
Tel. 213-537-8383
HITACHI SALES CORPORATION OF HAWAII, INC
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Tel. 808-836-3621

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Tel. 514-697-9150

HITACHI SALES EUROPA GmbH
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HITACHI SALES (U.K.) Ltd.
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